Application No. Not Yet Assigned
Paper Dated: April 22, 2005
In Reply to USPTO Correspondence of N/A
Attorney Docket No. 0470-051148

Customer No. 28289

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claims 1-23   (Cancelled)

Claim 24 (new):   An assembly comprising a filter housing and at least one filter cartridge,

- wherein the at least one filter cartridge is tubular, has a tube wall and a central discharge channel with a discharge connection for discharging filtered medium, wherein the tube wall comprises filter means through which medium to be filtered is able to flow transversely to the tube wall;

- wherein the filter housing comprises a filter chamber surrounded by a side wall, in which the at least one filter cartridge is accommodated with the longitudinal direction parallel to the side wall;

- wherein the filter chamber has at least one outlet per filter cartridge to which the discharge connection of the respective filter cartridge is connected;

- wherein the side wall of the filter chamber is provided with at least one inlet for feeding in the medium to be filtered, which inlet opens into the filter chamber at a level that is traversed by the at least one filter cartridge; and

- wherein when viewed in the transverse direction of the filter cartridge and at the level of the inlet, the shortest distance (X) from the filter cartridge to the side wall is, viewed in the transverse direction of the filter cartridge and below or above the level of the inlet, greater than the shortest distance (Y) from the filter cartridge to the side wall.

Claim 25 (new):   The assembly according to claim 24, wherein when viewed in the longitudinal direction of the filter cartridge, the relative enlargement (X minus Y) of the shortest distance from the filter cartridge to the side wall at the level of the inlet extends over a length of approximately the height of the inlet or more.

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Claim 26 (new):   The assembly according to claim 24, wherein the shortest distance X from the filter cartridge to the side wall is defined by the equation:

$$X \geq \frac{1}{2} \left(\frac{A}{2Q} \right)$$

where

A = surface area of inlet, and

Q = height of the region with larger shortest distance X.

Claim 27 (new):   The assembly according to claim 24, wherein the shortest distance X from the filter cartridge to the side wall is defined by the equation:

$$X \geq \left(\frac{A}{2Q} \right)$$

where

A = surface area of inlet, and

Q = height of the region with larger shortest distance X.

Claim 28 (new):   The assembly according to claim 26, wherein the inlet is circular with a diameter D_1 and wherein the shortest distance X is given by $X \geq \frac{1}{2}$

$$\frac{\Pi D_1}{8} \, .$$

Claim 29 (new):   The assembly according to claim 24, wherein A < B(Y), preferably A ≤ 2B(Y)

where:

A = surface area of inlet, and

B = as a function of Y, the surface area of the internal cross-section of the filter housing minus the sum of the cross-sectional surface areas of the filter cartridges at a level above or below the inlet.

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Claim 30 (new): The assembly according to claim 24, wherein a single cylindrical filter cartridge is provided that is arranged centrally in the cylindrical filter housing, and where:

$$A < \frac{\Pi}{4}(D_3{}^2 - D_2{}^2),$$

where

A = surface area of inlet

D_3 = internal diameter of filter housing

D_2 = external diameter of filter cartridge.

Clam 31 (new): The assembly according to claim 24, where:

$$Y < \frac{\sqrt{A}}{3.5},$$

where

A = surface area of inlet.

Claim 32 (new): The assembly according to claim 24, wherein the inlet is circular with diameter D_1; and where

$$Y < 0.75 \left(\frac{D_1}{4}\right).$$

Claim 33 (new): The assembly according to claim 24, wherein the filter housing is cylindrical with internal diameter D_3 and, at least conceptually for the purposes of the design, contains a single centrally arranged cylindrical filter cartridge and wherein the inlet is circular with diameter D_1, or at least has a surface area that is equal to a circular surface of diameter D_1, and wherein the following applies for the diameter D_2 of the filter cartridge, D_3 and D_1: $D_1{}^2 = 2 (D_3{}^2 - D_2{}^2)$.

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Claim 34 (new):   The assembly according to claim 24, wherein:

A is less than or equal to the sum of the internal cross-sectional surface areas of the filter

cartridges,

where

A = surface area of inlet.

Claim 35 (new):   The assembly according to claim 24, wherein the

enlargement (X minus Y) of the shortest distance from the filter cartridge to the side wall

at the level of the inlet has been obtained by constriction of the tube wall at that level.

Claim 36 (new):   The assembly according to claim 24, wherein the

enlargement (X minus Y) of the shortest distance from the filter cartridge to the side wall

at the level of the inlet has been obtained by making the side wall recessed at that level.

Claim 37 (new):   The assembly according to claim 24, wherein the tube

wall is impermeable to the medium to be filtered in the region where the shortest distance

from the filter cartridge to the wall has been enlarged.

Claim 38 (new):   The assembly according to claim 24, wherein the

assembly comprises 3, 4 or more of said filter cartridges, which are arranged next to one

another, parallel to one another.

Claim 39 (new):   The assembly according to claim 24, wherein the

level of the inlet is located in the region from 25 % to 75 % of the length of the filter

cartridge.

Claim 40 (new):   The assembly according to claim 24, wherein the

filter means are equipped to filter a medium in the form of a fluid.

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Claim 41 (new):   The assembly according to claim 24, wherein the filter means are equipped to filter a gaseous medium.

Claim 42 (new):   The assembly according to claim 24, wherein the filter cartridge is made as a fine filter on the one side of the inlet and is made as a coarse filter on the other side.

Claim 43 (new):   The assembly according to claim 42, wherein the fine filter is at least 5 times finer than the coarse filter.

Claim 44 (new):   A filter cartridge intended for use with a filter housing, wherein the filter cartridge is tubular, has a tubular wall and a central discharge channel with a discharge connection for discharging filtered medium, wherein the tube wall comprises filter means through which medium to be filtered is able to flow transversely to the tube wall;

- wherein the filter housing comprises a filter chamber surrounded by a side wall, in which the at least one filter cartridge is accommodated with the longitudinal direction parallel to the side wall;

- wherein the filter chamber has at least one outlet per filter cartridge to which the discharge connection of the respective filter cartridge is connected;

- wherein the side wall of the filter chamber is provided with at least one inlet for feeding in the medium to be filtered, which inlet opens into the filter chamber at a level that is traversed by the at least one filter cartridge; and

- wherein when viewed in the transverse direction of the filter cartridge and at the level of the inlet, the shortest distance (X) from the filter cartridge to the side wall is, viewed in the transverse direction of the filter cartridge and below or above the level of the inlet, greater than the shortest distance (Y) from the filter cartridge to the side wall.

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Claim 45 (new):   A diesel engine provided with a fuel filter comprising a filter cartridge, wherein the filter cartridge is tubular, has a tubular wall and a central discharge channel with a discharge connection for discharging filtered medium, wherein the tube wall comprises filter means through which medium to be filtered is able to flow transversely to the tube wall;

- wherein the filter housing comprises a filter chamber surrounded by a side wall, in which the at least one filter cartridge is accommodated with the longitudinal direction parallel to the side wall;

- wherein the filter chamber has at least one outlet per filter cartridge to which the discharge connection of the respective filter cartridge is connected;

- wherein the side wall of the filter chamber is provided with at least one inlet for feeding in the medium to be filtered, which inlet opens into the filter chamber at a level that is traversed by the at least one filter cartridge; and

- wherein when viewed in the transverse direction of the filter cartridge and at the level of the inlet, the shortest distance (X) from the filter cartridge to the side wall is, viewed in the transverse direction of the filter cartridge and below or above the level of the inlet, greater than the shortest distance (Y) from the filter cartridge to the side wall.

Claim 46 (new):   The assembly according to claim 26, wherein the inlet is circular with a diameter D_1 and wherein the shortest distance X is given by $X \geq \dfrac{\Pi D_1}{8}$.

Claim 47 (new):   The assembly according to claim 30, wherein a single cylindrical filter cartridge is provided that is arranged centrally in the cylindrical filter housing, and where:

$$A \leq 2\frac{\Pi}{4}(D_3{}^2 - D_2{}^2).$$

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Claim 48 (new):   The assembly according to claim 24, wherein the inlet is circular with diameter D_1; and where

$$Y < 0.4 \left(\frac{D_1}{4} \right).$$

Claim 49 (new):   The assembly according to claim 24, wherein the inlet is circular with diameter D_1; and where

$$Y < 0.15 \left(\frac{D_1}{4} \right).$$